

This listing of claims will replace all prior versions and listings of claims in the prior application:

22. (currently amended) A method for removing an alanyl residue from the N-terminal region of a polypeptide, the method comprising expressing a polypeptide having an alanyl residue in the N-terminal region of the polypeptide, forming a solution containing the expressed polypeptide and contacting the ~~expressed~~ polypeptide solution with immobilized *Aeromonas proteolytica* aminopeptidase to cleave the alanyl residue from at least about 48% of the polypeptide molecules in the solution.

23. (previously presented) The method of claim 22, wherein the alanyl residue is non-native to the polypeptide.

24. (previously presented) The method of claim 23, wherein the alanyl residue is cleaved to yield a polypeptide having a native amino acid sequence.

25. (previously presented) The method of claim 24, wherein the polypeptide is expressed in an expression system selected from the group consisting of a mammalian, a bacterial, and an insect expression system.

26. (previously presented) The method of claim 22, wherein the polypeptide is a human polypeptide.

27. (previously presented) The method of claim 25, wherein the polypeptide is a human polypeptide.

28. (previously presented) The method of claim 24, wherein the polypeptide is selected from the group consisting of human growth hormone (HGH), bovine somatotropin (bST), porcine somatotropin, (pST), and human tissue factor pathway inhibitor (TFPI).

29. (previously presented) The method of claim 24, wherein the contacting is carried out at a pH from about pH 7 to about pH 11.

30. (previously presented) The method of claim 22, wherein the aminopeptidase is immobilized on a solid support selected from the group consisting of chromatography resin, chromatography surface, or chromatography gel.

31. (previously presented) The method of claim 22, wherein the polypeptide that is contacted with the aminopeptidase is recirculated such that the polypeptide is contacted with the aminopeptidase at least one additional time.

32. (canceled)

33. (previously presented) The method of claim 31, wherein the contacting occurs at a temperature from about 20 °C to about 40 °C.

34. (previously presented) The method of claim 22, wherein a  $\text{Zn}^{2+}$  native catalytic cofactor of the aminopeptidase is replaced with a cation selected from the group consisting of  $\text{Cu}^{2+}$  and  $\text{Ni}^{2+}$ .

35. (currently amended) A method for removing an N-terminal alanyl residue from a polypeptide, the method comprising expressing a polypeptide having an N-terminal alanyl residue, forming a solution containing the expressed polypeptide and contacting the ~~expressed polypeptide~~ solution with immobilized *Aeromonas proteolytica* aminopeptidase to cleave the N-terminal alanyl residue from at least about 48% of the polypeptide molecules in the solution.

36. (previously presented) The method of claim 35, wherein the alanyl residue is non-native to the polypeptide.

37. (previously presented) The method of claim 36, wherein the alanyl residue is cleaved to yield a polypeptide having a native amino acid sequence.

38. (previously presented) The method of claim 37, wherein the polypeptide is expressed in an expression system selected from the group consisting of a mammalian, a bacterial, and an insect expression system.

39. (previously presented) The method of claim 35, wherein the polypeptide is a human polypeptide.

40. (previously presented) The method of claim 38, wherein the polypeptide is a human polypeptide.

41. (previously presented) The method of claim 37, wherein the polypeptide is selected from the group consisting of human growth hormone (HGH), bovine somatotropin (bST), porcine

somatotropin, (pST), and human tissue factor pathway inhibitor (TFPI).

42. (previously presented) The method of claim 37, wherein the contacting is carried out at a pH from about pH 7 to about pH 11.

43. (previously presented) The method of claim 35, wherein the aminopeptidase is immobilized on a solid support selected from the group consisting of chromatography resin, chromatography surface, or chromatography gel.

44. (previously presented) The method of claim 35, wherein the polypeptide that is contacted with the aminopeptidase is recirculated such that the polypeptide is contacted with the aminopeptidase at least one additional time.

45. (canceled)

46. (previously presented) The method of claim 44, wherein the contacting occurs at a temperature from about 20 °C to about 40 °C.

47. (previously presented) The method of claim 35, wherein a  $\text{Zn}^{2+}$  native catalytic cofactor of the aminopeptidase is replaced with a cation selected from the group consisting of  $\text{Cu}^{2+}$  and  $\text{Ni}^{2+}$ .

48. (currently amended) A method for removing an N-terminal alanyl residue from a recombinantly expressed polypeptide having an N-terminal alanyl residue, the method comprising forming a solution containing the expressed polypeptide and contacting the

~~expressed polypeptide~~ solution with immobilized *Aeromonas proteolytica* aminopeptidase to cleave the N-terminal alanyl residue from at least about 48% of the polypeptide molecules in the solution.

49. (previously presented) The method of claim 48, wherein the alanyl residue is non-native to the polypeptide.

50. (previously presented) The method of claim 49, wherein the alanyl residue is cleaved to yield a polypeptide having a native amino acid sequence.

51. (previously presented) The method of claim 50, wherein the polypeptide is expressed in an expression system selected from the group consisting of a mammalian, a bacterial, and an insect expression system.

52. (previously presented) The method of claim 48, wherein the polypeptide is a human polypeptide.

53. (previously presented) The method of claim 51, wherein the polypeptide is a human polypeptide.

54. (previously presented) The method of claim 50, wherein the polypeptide is selected from the group consisting of human growth hormone (HGH), bovine somatotropin (bST), porcine somatotropin, (pST), and human tissue factor pathway inhibitor (TFPI).

55. (previously presented) The method of claim 50, wherein the contacting is carried out at a pH from about pH 7 to about pH 11.

56. (previously presented) The method of claim 48, wherein the aminopeptidase is immobilized on a solid support selected from the group consisting of chromatography resin, chromatography surface, or chromatography gel.

57. (previously presented) The method of claim 48, wherein the polypeptide that is contacted with the aminopeptidase is recirculated such that the polypeptide is contacted with the aminopeptidase at least one additional time.

58. (canceled)

59. (previously presented) The method of claim 57, wherein the contacting occurs at a temperature from about 20 °C to about 40 °C.

60. (previously presented) The method of claim 48, wherein a  $\text{Zn}^{2+}$  native catalytic cofactor of the aminopeptidase is replaced with a cation selected from the group consisting of  $\text{Cu}^{2+}$  and  $\text{Ni}^{2+}$ .

61-68. (canceled)

69. (new) The method of claim 22, wherein the alanyl residue is cleaved from at least about 65% of the polypeptide molecules in the solution.

70. (new) The method of claim 22, wherein the alanyl residue is cleaved from at least about 75% of the polypeptide molecules in the solution.

71. (new) The method of claim 22, wherein the alanyl residue is cleaved from at least about 85% of the polypeptide molecules in the solution.

72. (new) The method of claim 22, wherein the alanyl residue is cleaved from at least about 96% of the polypeptide molecules in the solution.

73. (new) The method of claim 35, wherein the alanyl residue is cleaved from at least about 65% of the polypeptide molecules in the solution.

74. (new) The method of claim 35, wherein the alanyl residue is cleaved from at least about 75% of the polypeptide molecules in the solution.

75. (new) The method of claim 35, wherein the alanyl residue is cleaved from at least about 85% of the polypeptide molecules in the solution.

76. (new) The method of claim 35, wherein the alanyl residue is cleaved from at least about 96% of the polypeptide molecules in the solution.

77. (new) The method of claim 48, wherein the alanyl residue is cleaved from at least about 65% of the polypeptide molecules in the solution.

78. (new) The method of claim 48, wherein the alanyl residue is cleaved from at least about 75% of the polypeptide molecules in the solution.

79. (new) The method of claim 48, wherein the alanyl residue is cleaved from at least about 85% of the polypeptide molecules in the solution.

80. (new) The method of claim 48, wherein the alanyl residue is cleaved from at least about 96% of the polypeptide molecules in the solution.